

### **REMARKS/ARGUMENTS**

#### ***Claims Rejections – 35 USC § 112***

The rejections under 35 USC § 112 are obviated by the above amendment.

#### ***Claims Rejections – 35 USC § 103***

Since the examiner has indicated difficulty in reading and understanding the data on synergistic activity presented in the specification, these remarks begin with an explanation of the data itself and how it shows the existence of the synergistic effect.

Table 12 shows that the concentrations of the mixtures of tagetes and thyme oils (the rows beginning with the notation “C/D” in the left column) required to give 50% mite kill at the 3:1 and 1:3 ratios are 278.3mL/hL (row 8) and 334.2mL/hL (row 9), respectively. Each of these concentrations is significantly less than the concentrations required for 50% kill using either of the components alone, namely 452.6mL/hL (row 4) and 541.1mL/hL (row 6), respectively. These differences in 50% kill concentrations are clear indications of synergistic activity at each of these ratios. The result at the 1:1 ratio (row 7), which admittedly does not show synergism, is an anomaly; the trend is shown at the other two ratios, which do demonstrate synergism.

Further proof is presented in the whitefly data shown in Table 13, where at the ratio of 1:1, the amount of tagetes/thyme oil mixture required for 50% kill was 28.8mL/hL (row 6), thyme oil alone required a concentration of 37.6mL/hL (row 5) and tagetes oil required a concentration of 407.6mL/hL (row 3). The addition of tagetes oil thus produced a reduction of 23% in the 50% kill concentration for thyme oil, an unexpected degree of reduction since the massive 407.6mL/hL concentration for tagetes oil indicates that it was not very active at all. This is particularly strong proof of synergism.

With the synergistic effect thus shown, the invention as presently claimed is not obvious over the prior art.

As the examiner has recognized, Bessette et al. US 2003/0194454 A1 do not teach a mixture of tagetes and thyme oils. The pesticidal compositions of Bessette et al. are rosemary

and wintergreen oils, with a suggestion of the inclusion of thyme oil as an additional component of the mixture. The reference makes no mention of tagetes oil. The examiner holds that the teachings of Tumbers US 2003/0203056 A1 makes it obvious to replace the rosemary oil of Bessette et al. with tagetes oil. Tumbers lists a large number of essential oils on page 1, right column, and suggests that they may be useful as nematocides. Tumbers also teaches that oils may be mixed together to extend the range of nematode species that may be treated (see paragraph 0020). However, there is nothing in Tumbers to motivate the reader to make the substitution suggested by the examiner. While tagetes oil is included in the long list of options provided in this reference, it is not used in any of the examples in the reference. The disclosure instead focuses attention on tea tree oil, eucalyptus oil, and oil from *backhausa citriodora* (see paragraph 0021, last lines, and Example 1). The list of oils in this reference is a needle-in-the haystack type of disclosure – see *In re Luvisi et al.*, 144 USPQ 646-654 (CCPA, 1974) – and there is nothing in the list or the specification of motivate a skilled person to select tagetes oil from the list, much less that the selection would result in a synergistic effect.


Nor would it be obvious to substitute any of the oils of the Bessette et al. disclosure for the mixtures of Linsig et al. CH 688787 A5. Linsig et al. is a broad disclosure that essential oils can work together in a wide variety of biological systems in a biological, physiological, and/or psychic way. The examples, none of which employ either tagetes or thyme oils but rather a complex mixture of other essential oils, illustrate the use of these mixtures in a calming therapy for dogs (Examples 1 and 2), a shampoo that removes (but not necessarily kills) parasites such as fleas (Example 2), a plant growth enhancer and mite repellent (example 4), and a mosquito repellent for use on the skin (Example 5). There is no teaching in Linsig et al. to suggest that the compositions have any insecticidal effect at all. Even if there were, the only suggestion would be to try the particular combinations used in the examples. Indeed, the disclosure in Linsig et al. lacks any motivation to replace the rosemary or wintergreen oil of Bessette et al. with thyme and tagetes oil, as one would have to do to arrive at the present invention. The synergistic effects that Applicant has discovered make the combination even more nonobvious.

**CONCLUSION**

In view of the foregoing, Applicant believes all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



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